

# Notice of Allowability

Application No.

10/823,662

Examiner

Livius R. Cazan

Applicant(s)

MATSUTANI ET AL.

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to Application No. 10/823662 filed on 4/14/2004.
2. ☒ The allowed claim(s) is/are 1-6.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☒ All    b) ☐ Some\*    c) ☐ None    of the:
    1. ☒ Certified copies of the priority documents have been received.
    2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.  
**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS ( as "replacement sheets") must be submitted.
  - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review ( PTO-948) attached
    - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
  - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

## Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO-1449 or PTO/SB/08),  
Paper No./Mail Date \_\_\_\_\_
4. ☐ Examiner's Comment Regarding Requirement for Deposit  
of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413),  
Paper No./Mail Date \_\_\_\_\_
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☒ Other Attachment.

  
**PETER V. O.**  
**SUPERVISORY PATENT EXAMINER**  
**TECHNOLOGY CENTER 3700**

### **EXAMINER'S AMENDMENT**

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

The application has been amended as follows:

#### **In the Title:**

- The title of the Application has been amended to: --Method for Manufacturing Noble Metal Electric Discharge Chips for Spark Plugs--

#### **In the Specification:**

- On page 1, before "Field of the Invention", insert:

"Cross Reference to Related Documents

The present application claims priority to Japanese Patent Application Number 2003-110133 filed April 15, 2003, incorporated herein by reference in its entirety.

- On page 5, paragraph [10], line 1, replace "above-deserted" with --above-disserted--
- On page 20, cancel paragraph [40]

#### **In the Claims:**

- In claim 1, lines 10 and 11, replace "mass%" with --percent by mass--

For clarity, a copy of claim 1, as amended by the examiner, has been provided in the Attachment.

2. The following is an examiner's statement of reasons for allowance:

The prior art does not teach, in combination with all other claim limitations, wire drawing an ingot of an iridium alloy containing not lower than 0.5 percent by mass and not higher than 35 percent by mass of a metal component other than iridium with a wire drawing die and rolling to form a wire rod having a cross-sectional area of not smaller than 0.05 mm<sup>2</sup> and not larger than 1.2 mm<sup>2</sup>, the iridium alloy being heated to a temperature of not lower than 1000 degrees Celsius and not higher than 1150 degrees Celsius at a temperature measuring position which is 20 mm away from the work inserting surface of the die in a direction opposite the wire drawing direction, the temperature in a region extending from the temperature measuring position to the work inserting surface of the die being set to not lower than 1000 degrees Celsius, and the wire drawing rate not being lower than 1300 mm/min and not higher than 1600 mm/min. The prior art teaches forming iridium alloy wire rods by drawing an iridium alloy through a wire drawing die, but the particular combination of alloy composition, wire thickness, temperature of the alloy and drawing rate are neither taught nor obvious over the prior art.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

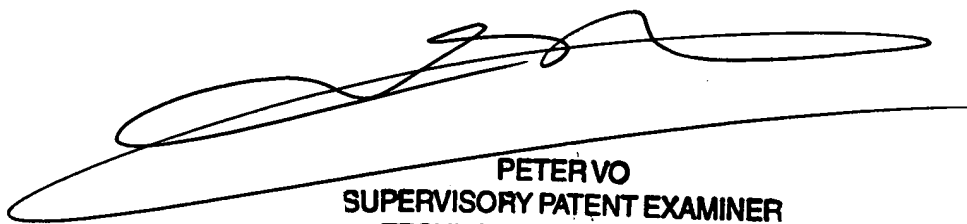
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Livius R. Cazan whose telephone number is (571) 272-8032. The examiner can normally be reached on 7:30AM-4:00PM.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Peter Vo can be reached on (571)272-4690. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

LRC 04/28/2006



**PETER VO**  
**SUPERVISORY PATENT EXAMINER**  
**TECHNOLOGY CENTER 3700**

**Attachment**

Claim 1:

A method of manufacturing noble metal electric discharge chips for a spark plug, said spark plug comprising:

a central electrode, an insulator covering a circumference of the central electrode with a free end portion of the central electrode being exposed, and

an earth electrode fixed to the main metal member and having a opposing portion forming a discharge gap g between the earth electrode and the free end portion of the central electrode,

the method comprising:

wire drawing an ingot of an iridium alloy containing not lower than 0.5 ~~mass~~ %percent by mass and not higher than 35 ~~mass-%percent by mass~~ of a metal component other than iridium with a wire drawing die and rolling to form a wire rod having a cross-sectional area of not smaller than 0.05 mm<sup>2</sup> and not larger than 1.2 mm<sup>2</sup>, and

cutting the wire rod to a predetermined length to produce a noble metal electric discharge chip for fixing on at least one of the free end portion of the central electrode and the opposing portion of the earth electrode,

wherein said wire drawing comprises continuously red heating and/or white heating the iridium alloy at a portion thereof within a heating region extending from a work inserting surface of the die to a position of predetermined distance opposite the wire drawing direction, the iridium alloy being heated to a temperature of not lower than

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1000°C. and not higher than 1150° C at a temperature measuring position which is 20 mm away from the work inserting surface in a direction opposite the wire drawing direction, the temperature in a region extending from the temperature measuring position to the work inserting surface of the die is set to not lower than 1000° C, and the wire drawing rate is not lower than 1300 mm/min and not higher than 1600 mm/min.